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(54) REMOVAL OF VAPOR AND CARBON DIOXIDE GAS

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PURPOSE: To reduce the partial pressure of water vapor in a gas transmission side area compared to that in a gas supply side area, and thereby removing water vapor and carbon dioxide gas efficiently and easily by supplying part of the gas which has transmitted through a carbon dioxide gas separator film into the gas transmission side area of a water vapor separator film.

CONSTITUTION: A preprocessed natural gas is introduced into a water vapor separation device 14, and the vapor which is present in natural gas is allowed to transmit through a water vapor separator film 17 selectively and then is separated to a gas transmission side area 18. Next, the natural gas which is now separated from the vapor is introduced into a carbon dioxide gas separation device 19. Further, carbon dioxide gas contained in the natural gas is allowed to transmit through a carbon dioxide separator film 21 selectively, and then is separated to a gas transmission side area 22. Part of the transmission gas in the gas transmission side area 22 is supplied to the gas transmission side area 18 of the water vapor separator film 17. Consequently, the partial pressure of water vapor contained in the transmission gas in the gas transmission side area 18 of the vapor separator film 17 can be maintained at a lower level than the partial pressure of water vapor contained in the natural gas in a gas supply side area 16.

